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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,752	06/12/2001	Matthew L. Marrocco III	45345/WPC/M237	5110

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EXAMINER

THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,752

Applicant(s)

MARROCCO ET AL.

Examiner

Camie S Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-150 is/are pending in the application.
- 4a) Of the above claim(s) 5, 10-12, 62-65 and 77-138 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 17-18, 21-24, 26, 29-40, 42-55, 57-61, 66-75 and 141 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 13-16, 25-29, 31, 34-39, 56, 60, 61, 76, 139, 140 and 142-150 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5. 6) ☐ Other: ____

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DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention: Claims 1, 142 and 143 are directed to 12 (XII) different polymer species. Claims 26, 107 and 141 are directed to 19 different polarizable ligand species.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

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examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with William P. Christie on September 23, 2002 a provisional election was made with traverse to prosecute the invention of polymer repeating unit XI (11) and polarizable ligand 17, claims 1-4, 6-9, 13-61, 66-76 and 139-150. Applicant in replying to this Office action must make affirmation of this election. Claims 5, 10-12, 62-65 and 77-138 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

4. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 2-150 of this application. The provisional application is not exactly the same as the non-provisional application, which the applicant is seeking the benefit of domestic priority.

Information Disclosure Statement

5. The information disclosure statements filed on June 12, 2001 and February 20, 2002 fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Applicant has not submitted the publication entitled "Electroluminescent Material" by Blasse et al., Chapter 5, 1994, Springer-Verlag, which is listed on page 19 of the specification.

6. The information disclosure statements filed on June 12, 2001 and February 20, 2002 fail to comply with 37 CFR 1.98(a) (1), which requires a list of all patents, publications, or other information, submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. The publication entitled "Electroluminescent Material" by Blasse et al., Chapter 5, 1994, Springer-Verlag, which is listed on page 19 of the specification, is not listed on either Information Disclosure Statements.

Specification

7. Applicant is reminded of the proper language and format for an abstract of the disclosure.

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The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

8. Claim 40 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 18. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
9. Claim 9 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

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10. Claim 67 is objected to because of the following informalities: There appears to be a typographical error. The word composition is misspelled. Appropriate correction is required.

11. Claim 109 is objected to because of the following informalities: There appears to be a typographical error. It appears that claim 109 should be dependent on claim 108 and not claim

118. Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

13. Claims 26 and 141 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 26 and 141 are rendered indefinite because they do not define the R and the subscripts "m", "n", "o", "p", "q", "r" and "s" for the polarizable ligands that have R_{m-s}.

Claim Rejections - 35 USC § 103

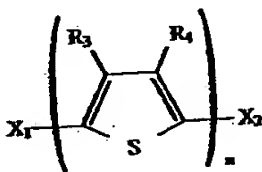
14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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15. Claims 1-3, 7-9, 17-18, 21-24, 30, 32, 33-34, 42-55, 57-59 and 66-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al., U.S. Patent Number 5,540,999 in view of Aziz et al., U.S. Patent Number 6,392,250.

Yamamoto discloses an electroluminescent element comprising at least one layer comprising a thiophene polymer or copolymer comprising the structural unit as listed below



as per instant claims 1, 3, 9, 18 and 40 (see Figure 1 and column 3, line 64-column 4, line 54).

The Yamamoto reference discloses that the copolymer can be random, alternate or block copolymers as per instant claims 30 and 32-33 (see column 8, lines 30-40). In addition, the Yamamoto reference discloses that the electroluminescent element comprises a glass substrate having an indium tin oxide anode, one or more charge transport materials comprising tris(8-quinolinolato)aluminum and N,N'-bis(m-methylphenyl)-N,N''-diphenyl-1,1'-biphenyl 4,4'-diamine, an electroluminescent layer comprising a polythiophene copolymer and a second electrode (cathode) as per instant claims 42-49 and 66-74 (see Figure 1; column 6, lines 31-61; Table 4 and Examples 1-13). Although the Yamamoto reference discloses using other luminescent materials, the reference does not disclose luminescent metal ions or luminescent

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metal ion complexes in the polymer composition as per instant claims 1-2, 7-8 and 17. Aziz teaches an organic light-emitting device comprising polymers such as polythiophene with a lanthanide metal chelate dopant such as tris(acetylacetonato)(phenanthroline) terbium or tris(2-phenylpyridine) iridium (see column 7, lines 56-60 and column 11, line 52-column 12, line 3). It would have been obvious to one of ordinary skill in the art to use a lanthanide metal chelate complex or luminescent metal ions/complexes as the dopant in the Yamamoto reference in order to provide various emission colors and increased electroluminescence efficiency from the organic light-emitting device as shown by Aziz in column 3, lines 11-50. Yamamoto does not disclose that the hole-transport material and the electron transport material are graded in the electroluminescent layer as per instant claims 50-51 and 75. Aziz teaches that the organic light-emitting device includes a mixed region (graded) composed of a mixture of a hole-transport material, an electron transport material and at least one dopant material (see abstract and column 2, line 65-column 3, line 10). It would have been obvious to one of ordinary skill in the art to have a graded electroluminescent layer of Yamamoto in order to have enhanced efficiencies and operational lifetimes of the light-emitting device as shown by Aziz in column 3, lines 4-10. Additionally, the Yamamoto reference does not disclose the turn-on voltage of the electroluminescent element as per instant claims 57-59. Aziz teaches that the preferred operating voltages of the electroluminescent device are from 3 to 20 volts. It would have been obvious to one of ordinary skill in the art to have turn-on voltages of less than 15 V in order to provided extended operational lifetimes as shown by Aziz in column 7, lines 20-31.

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The emission bands of the polythiophene copolymer composition and the device comprising the composition will be 20 nm or less as this is a structural property of the polythiophene copolymer composition as per instant claims 21-24 and 52-55. Therefore, this feature is inherent.

16. Claims 4,6, 13-16, 19 -20, 25-29, 31, 35-39, 56, 60-61, 76, 139-150 are objected to as drawn to the elected specie only.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (703) 305-4488. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly, can be reached at (703) 308-0449. The fax phone numbers for the Group are (703) 872-9310 {before finals} and (703) 872-9311 {after finals}.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

